



Technical Workshop
September 24th & 25th, 2018
Newport Marriott, Newport, RI



Monday, Sept. 24

10:10am - Welcome – NORA Goals *John Huber, President, NORA* – Mr. Huber will present what NORA and the industry are doing to respond to the demands to lower greenhouse gases in the heating oil states.

Environmental Goals for Heating Oil Country – How do the States plan to meet those goals and it is possible? *Richard Sweetser* will describe the environmental policy that favors an all-electric economy powered by renewable electricity. Can similar gains envisioned by the regulators be achieved by the bioheating industry at lower costs?

Responding to Europe’s 2050 Environmental Goals – *Dr. Ernst-Moritz Bellinghen, Eurofuels, Belgium*. Europe faces, and is responding to, challenges much like the U.S. heating industry. Dr. Bellinghen from Eurofuels will describe those challenges and how the industry in Europe is responding.

12:15 - 2:00pm NORA Board Meeting The Fall Board Meeting will review budgets and the accomplishments of NORA and the challenges ahead. All are welcome to attend, but this is a working meeting.

2:30 - 3:30pm New Technologies for Liquid Fuels Oilheating technology has steadily evolved from the development of the flame retention oil burner. Now the industry needs a burner that can burn biofuels and can modulate and power the next generation of equipment. NORA has supported this technology development. Two of the developers will describe their activities.

Babington Burner – Status and Technical Review, Andrew Babington, Babington Technology

Aerosol-Enabled Liquid Fuel Combustion, Jason Targoff, Novatio Engineering

Technology Update from Europe – Dr. Klaus Lucka, Tech-4-Fuels, Germany – Europe has been advancing novel technologies to improve burners and boilers and integrate with solar and wind power. Dr. Lucka will share the developmental work that is occurring.

3:45 - 4.45pm Achieving Higher Efficiency

NORA/NYSERDA Tankless Coil Project Findings – Neehad Islam, NORA Research Engineer will present the research NORA has completed in conjunction with NYSEDA, to understand and improve the efficiency of tankless coils.

Fuel-Fired Heat Pump – Heating oil has been achieving AFUE’s of 86 for decades and recently manufacturers have broken the 90% efficiency barrier. Can we go above 100 percent? **Stone Mountain Technology** will describe their technology which could jump efficiency by 50 points—and be fired by a renewable fuel.

Integrating Heating Oil with Air-Source Heat Pumps – Small “cold weather heat pumps” have attracted attention throughout the northeast. However, they are not efficient at low temperatures and cannot effectively heat a house on cold days in the north. **Dr. Thomas Butcher, Technical Director, NORA** will describe the joint project with NYSEDA to understand the efficiency of these devices and how they are being integrated with existing boilers.

Flame Quality Sensing – There have been some concerns that biofuels, because of their flame temperature and oxygen content, may change the profile of the flame. **Dr. Butcher** will review the NORA research on this topic.



Tuesday, Sept. 25

8:30 - 9:45am Biofuels **Liquid Renewable Fuels** are this industry's answer to meeting the demands to reduce greenhouse gases. This will require higher and higher blend rates with new fuels from new sources, while putting increasing demands on supply. Then, how they will work with our existing infrastructure?

Renewable Fuels from Wood – NORA undertook a field study of a new fuel made from cellulosic material/wood waste this winter. Cellulose has always been the “holy grail” of biofuels, as the world is full of wood waste, lawn waste, etc. If it can be converted to a fuel suitable for residential customers use, we would have a fuel that has a very low greenhouse gas profile and be readily available. **Biofine Technology, Waltham, MA** will give an update on this research and their activities.

NORA Lab Studies on Biofuels – **Ryan Kerr, NORA Research Engineer** has been evaluating various fuels at NORA's Research Laboratory, Palinview, NY, including: biodiesel, renewable diesel, heating oil, and ethyl levulinate; attempting to find the best blend of these materials to interact with current heating oil appliances, as well as identify the best fuel for the environment.

Impact of Copper on Fuels – **Marty Haverly, Process Development Engineer II, Renewable Energy Group (REG)** Is the presence of copper in a oil heating system a problem when exposed to biofuels? Marty Haverly will review the research undertaken by REG and NORA on this subject.

Will There Be Enough Biodiesel? – Growing interest in using more biodiesel at higher blend levels will require increasing levels of oils and fats. The **National Biodiesel Board** has identified feedstock development as top research goal and will present the current feedstock outlook and options being considered to meet higher future demand for biodiesel.

10:00 - 11:00am New Ideas for Industry Open Call for Papers – NORA has put out a call for papers to identify research underway at equipment manufacturers, or in private laboratories that will be welcomed at this session.

11:15am - 12:15pm - Panel Discussion on Future NORA will then host a final wrap up discussion of the activities of the conference. The panel and the audience will have an opportunity to discuss the research underway as well as describe challenges that NORA should address in the future.

John Huber – Moderator

Charlie Uglietto – Cubby Fuels

Peter Aziz – Bantam Wesson Fuels

Matt Cota – Vermont Fuel Dealers

Tom Butcher – NORA